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Importance of Surgical Treatment in Chronic Purulent Otitis Media.

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IMPORTANCE OF SURGICAL TREATMENT IN CHRONIC PURULENT OTITIS MEDIA.

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It is not my purpose to go into detail in regard to the surgical treatment of chronic purulent otitis media, but rather to urge the importance of recognizing the necessity for such treatment when it exists, and point out briefly the dangerous sequelæ which are sooner or later liable to arise, and when we take into consideration the comparative frequency of these sequelæ, the successful treatment of the condition becomes a matter of prime importance.

St. John Roosa[1] says: "The almost inevitable consequences of suppuration of the middle ear are dangerous to life and health of patients, hence the importance of the subject and the interest which every physician should take in arresting the advance of the disease."

It is almost an every day occurrence for the aurist to come in contact with patients suffering from a chronic purulent discharge from the ear which has continued months or years, who inform him that they have been told by physicians that they need no treatment further than the routine injection of antiseptic solutions, or the insufflation of some antiseptic powder, or, perhaps, they have been advised that they will "outgrow" the trouble. Such advice is, as a rule, misleading, inasmuch as it engenders a false feeling of security which should not exist where there is a persistent purulent discharge from the ear. These cases may be divided into two classes as regards effects of routine treatment: 1st. Those cases which respond readily. 2d. Those which respond indifferently or

not at all. It is with this latter class that we are specially concerned.

In a majority of these cases a careful examination will reveal the fact that there exists more or less necrotic tissue, such as dead bone granulations, etc., or polypi, exostoses, and other products of inflammation, and when the disease has involved the deeper structures there are accumulations of effete material, the result of long continued inflammation, which the ordinary measures will not reach, and our efforts will prove of no avail unless we provide for free drainage. We must recognize and carry out the fundamental principles of surgery, here, as elsewhere. In those cases of suppurativi otitis lasting over several months, there is nearly always present a condition which calls for surgical interference, and such surgical interference should be unhesitatingly resorted to as the only rational method of treatment. Otologists have quite generally recognized these facts within recent years, but if one can judge from the number of cases of persistent otitis media of years standing still "making the rounds," it is reasonable to conclude that there is still too much timidity in this regard especially on the part of the general practitioner.

These cases, with very few exceptions, may be permanently relieved by removing the offending necrotic elements, granulations, polypi or other products of the disease, and such other obstructions to free drainage as may exist. This can generally be accomplished through the external meatus, but occasionally it may be necessary to resect the parts posterior to the meatus or open up the mastoid cells, establishing drainage through the ear.

These proceedings are comparatively simple, and when done with proper precautions are reasonably free from danger. But the anatomical relations and structure of the parts must be borne in mind, as the walls of both the middle ear and mastoid cavities are naturally thin, and when weakened by disease one might, with the smallest amount of undue force,

enter the lateral sinus, labyrinth, or brain cavity. The hemorrhage as a rule is of little consequence. In operating on the middle ear there is some danger of wounding the facial nerve, as it passes through the Fallopian canal. I may state, in this connection, that I have recently seen a case of facial paralysis produced in this way, in the practice of Dr. Bach. It did not appear until twenty-four hours after the operation, but the doctor was of the opinion that it was due to irritation at the time of the operation and a consequent congestion. The paralysis in this case responded readily to treatment by electricity, and was entirely gone in a few weeks. The results, however, are not always so favorable as this. Victor Horsley, Keen, and others, state that the proximity of the nerve may be ascertained by the twitching of the facial muscles when an instrument comes in contact with its trunk. But I think the safer method is to locate the Fallopian canal and then control all hemorrhage so that it may be kept in view.

In cases of suppuration of the middle ear of long standing, the ossicles are frequently entirely destroyed, and after removal of remnants of the membrane, a thorough and careful use of the curette, especially devised for this purpose, followed by appropriate after-treatment, is all that is necessary to effect a cure of the suppuration at least.

The membrane should be thoroughly removed, not merely incised, but excised close to its attachment, especially at the lower part, so as to prevent lodgment of accumulations behind the membrane, and thus obstruct drainage. *Excision of ossicles.* When there is only partial caries and ankylosis of ossicles it may be necessary to excise them. I will not go into detail in regard to this operation, but suffice it to say that it is by no means an easy matter. General anesthesia is not always necessary and many operators use a strong solution of cocaine instead with success.

The published reports of excision of the ossicles are decid-

edly favorable and where other methods are insufficient, it offers very encouraging hope. In regard to results Burnett[2] formulates the following conclusions:

1. "This operation has not failed to stop suppuration in all cases of purulent otitis media in which the author has applied it."

2. "In 'attic' cases with normal atrium the sole perforation being in the membrane flaccida, this operation is the only means of cure."

3. "By this operation in cases in which the sole perforation is in the membrana tensa, and is comparatively small, and while the purulency is limited to the anterior part of the drum cavity, the suppuration is checked before it reaches the posterior part of the drum cavity, and mastoid disease, sinus thrombosis, and cerebral abscess are prevented."

4. "If any hearing exists before the operation, it invariably improves after the operation."

5. "Vertigo, headache, tinnitus, and the ordinary attacks of acute inflammation, so common in chronic otorrhea are entirely removed by excision of the necrotic remnants of the membrana malleus and incus."

Milligan[3] lately reported fifteen cases operated, with eleven cures, two improved and two still under treatment. Of the thirteen cases discharged, hearing was improved in eight, same in three, and worse in two.

Milligan concludes that in suppurative otitis with perforation of the membrane and caries of ossicles, local treatment has failed. That by excision of the ossicles all the symptoms are usually benefited and rarely made worse.

In the discussion of the paper the general opinion seemed to be in line with the ideas expressed by Milligan.

Many other operators, both here and abroad, report cases with a percentage of cures of the suppuration ranging from 75 to 85 per cent., with marked relief of the other symptoms and a decided increase in the power of hearing as a rule. Be-

fore taking up the consideration of sequelæ, I might mention briefly the operation for the relief of this condition first suggested by Stacke,[4] of Erfurt, in 1890. He claims that the operation is particularly indicated where there is disease of the attic, and that, as a rule, the temporal autrum is involved in these cases.

Stacke makes an incision down to the bone following the insertion of the auricle, excises the posterior wall of the meatus and clinches through the mastoid until the antrum is reached. He then removes the remains of the ossicles membrane, and whatever debris there may be present, making the attic and lower part of tympanum to form one cavity, and securing a free opening between the meatus and antrum, which is covered by a flap of skin and periosteum from the meatus. This is a difficult and formidable operation, practically a mastoid operation, and it does not seem to be justifiable or necessary in uncomplicated cases. The statistics of the operation as regards cure of suppuration and increase of hearing certainly do not bear out the claims made for it.

Sequelæ. Among the most common consequences of middle ear disease are accumulations of masses of debris consisting of degenerated epithelium, fatty matter, etc., the so-called *Cholesteatoma*, or pearly tumor. Virchow[5] says that nearly one-third of all fatal cases are due to these accumulations. On examination of an ear containing cholesteatoma a yellow hard mass will be seen, probably quite filling the middle ear, the odor is very offensive and the ear exceedingly painful.

These masses can generally be softened up, and removed by syringing if they are situated where they can be reached by such measures. But if located deep in the middle ear, or impacted in the mastoid cells it is of course necessary to resort to surgical intervention, either the use of the curette or opening up the mastoid. Cholesteatoma are very liable to recur.

Exostoses, excepting congenital, are with few exceptions

due to middle ear suppuration. They can generally be removed with the curette, but occasionally are dense and require the use of the chisel or dental engine and burr as first suggested by Mathewson.

Mastoid disease, periostitis and caries with pus formation more frequently results from purulent otitis media than from any other cause. In a summary of fifty-nine cases reported by Roosa[6] twenty-five were due to this trouble. The statistics of various authors I have at hand place the proportion of mastoid cases due to ear disease at from one-third to one-half, and when we take into consideration the close relationship of the middle ear and mastoid it is easy to understand how extension of inflammation from one to the other takes place.

It is not always an easy matter to differentiate between periostitis and caries of the mastoid as frequently the symptoms are very similar, frequently however, in suppuration of mastoid, the ordinary symptoms of periostitis, redness, swelling, etc., are absent, and excessive pain in the ear with perhaps a decrease in the discharge and rise of temperature are the only indications. Where these symptoms exist no time should be lost in applying surgical treatment.

Necrosis of temporal bone, more or less extensive, not infrequently occurs as a consequence of this disease, and there are a number of cases on record where nearly all of the bony structures of the internal ear have become carious and been extracted as sequentra during the life of the patients. This is one of the most fatal complications and the symptoms vary widely, according to the parts involved. The canal in which runs the facial nerve may be included in the necrosis or there may be engorgement of the nerve during the acute exacerbation and facial paralysis complicates the condition. The prognosis of the paralysis, however, is generally good. The treatment in addition to the application of general principles

must necessarily be largely expectant, removing the sequestra when it is possible.

Meningitis is a comparatively frequent and very fatal complication, especially in young children. It is, as a rule, secondary to other complications, such as cerebral and mastoid abscess, etc. Meningitis may be produced by entrance of morbid material into the circulation or by extension of inflammation from the bone to the dura and meninges. The symptoms do not differ materially from those of meningitis due to other causes. It seems to be the general opinion that surgical treatment is of little use in these cases. Pitt, quoted by Burnett,[7] says a fatal termination will be more frequently prevented "when it is recognized that it is desirable to operate sooner than we have hitherto done in those cases of ear disease in which there are severe local symptoms."

Cerebral abscess, extra dural, sub dural and abscess of brain substance proper, more frequently result from middle ear suppuration than from any other cause. According to good authority fifty per cent. of all cases arise in this way. It is not necessary for caries of bone to exist in order that abscess may be developed. The purulency may involve the internal ear, and by extension along the membranes, cause a septic inflammation and result in the formation of abscess. The symptoms of abscess generally follow cessation of the discharge, and are severe headache, either general or local, due to pressure, slowness of pulse and respiration, vomiting, sluggishness of the mental faculties and other symptoms, according to the location of the abscess. There is generally a rise of temperature, but if the abscess be extra dural or subdural, it is frequently normal or subnormal. As the greater number of abscesses from ear disease situated in the tempero-sphenoidal lobe, symptoms of pressure in this region, such as motor aphasia and paralysis of the face and extremities will frequently appear. Owing largely to recent advances in the matter of cerebral localization, the indications for surgical

interference are now clearer, and while the results are not all that could be desired, they are very encouraging.

Thrombosis of the lateral sinus and phlebitis are occasionally met with and often give rise by metastasis, to septic pleurisy or abscess of the lung. The symptoms of thrombosis are rigor, pyrexia, tenderness behind the mastoid, pain in the occiput and neck, and if the clot has extended along the jugular vein, there will probably be tenderness and inflammatory thickening in the region of the vein and carotid artery. The discharge from the ear will have ceased in the majority of cases. This condition was formerly considered to be an extremely fatal complication. But within the past few years it has been more frequently recognized as it occurred, and the results of ligating the internal jugular as first suggested by Zanfel in 1889, have been satisfactory.

The best statistics I have been able to find are those of Lane.[8] He lays open the sinus, ligates the jugular below any thrombus encountered, and irrigates the septic surfaces. Lane reports ten cases with nine recoveries. In a series of thirty-two cases gathered from various sources by Keen[9] nineteen recovered and thirteen died after this operation. And Dr. Macewan, in his recent textbook, mentions twenty cases operated with sixteen recoveries. Thus it will be seen that the results of operation in this condition are decidedly favorable.

Malignant sarcoma and carcinoma and tuberculosis are said to be among the rarer complications of purulent otitis media. It is not with the expectation of giving you any new facts that I present this paper, but rather with the hope that it will serve to impress more firmly upon your minds the necessity for surgical procedures in chronic suppuration of the middle ear. In regard to temporizing with this condition, Keen has this to say: "A case may go on for fifteen or twenty years, but the day of reckoning may at last come, and when it does come, it comes like a whirlwind."

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